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ELECTION/RESTRICTIONS

Species I thru VIII

Figs. 5--26 and Figs. 60--63, designated as Species I--VIII, show sloping members and cross-members interfacing or in the proximity of interfacing. Figs. 5–20, designated as Species I– V, are embodiments of the invention found in the allowed Patent Application Ser. # 190956. Figs. 5—26, designated as Species I—VII, are embodiments of the invention found in the allowed Patent Application Ser. # 779975.

Regarding all embodiment designated as Species I—VIII, distinguishing physical characteristics common to the embodiments are that, the end-portion of the cross-member is disposed above the sloping member, where the cross-member has a projection-depression and the sloping member has a projection-depression, such that the projection-depression of one fits with the projection depression of the other. Generally, these physical properties allow cross-members to be lifted from the sloping-member to detach, and to set down upon the sloping members to attach, with surprising ease, resulting in a surprisingly stable grid structure.

These physical properties are in contrast to members fitting together from side to side, such as occurs in common ceiling grid. These structural properties also are in contrast to situations where similar members are joined in to another with fasteners such as screws or nails. Because of the specific physical characteristics cited, having the embodiments of this patent application, excluding those of Figs. 60 to 63 surprisingly, one can easily take cross-members out simply by lifting the cross-member up, generally anywhere in the grid, without disturbing other parts of the grid. Yet when all the cross-members are in

place in the grid, surprisingly the grid is extremely stable. Which embodiment is preferred, generally depends on the situation.

All embodiment have properties expressed in independent claims 1, 17 and 18:

> a plurality of sloping-members, each sloping-member with an upper-face....and with one or more projection-depressions of said upper-face such as one or more partially driven nails, or such as one or more drilled holes,
>
> a plurality of cross-members, each cross-member comprising a middle-portion and two end-portions, each end-portion with an upper-face, the middle-portion with an upper-face, said upper-face of the middle-portion and said upper-faces of the end-portions practically co-planar,
>
> wherein the upper-faces of the cross-members are substantially co-planar, said panels resting upon said cross-members, oriented with rise and fall of corrugations normal to said low-ledger, said panels overlapping, wherein a substantially planer shedding surface is formed over the grid, whereby said panels can be set into position, shifted, slid or lifted out of position without requiring tools for fastening or unfastening, whereby the panels can be installed and uninstalled from below, whereby the ease of installation and removal is facilitated, and whereby, access to the area above the panels for maintenance and other reasons is greatly facilitated.

Common physical characteristics of Species I—VIII a a sloping-member, a cross member, the cross-member having end-portions which are disposed over sloping members, the end-portions of the cross-members, each having a projection – depression which interface with projection-depressions of sloping members,

For embodiments designated as Species I, II and IV and VIII, as well as embodiments of Fig. 56—59, the cross-member has projection-depression such that the end-portions of the cross-member fits in or about projection-depressions of the sloping-member, where the projection-depressions of the sloping-

members project upward from the sloping-member surface. On the other hand, for embodiments designated as Species III, V, VI, VII, projection-depression portions of the sloping member fit into or about projection-depressions of the cross-members.

It is surprising and unexpected that a stable grid can be installed where the internal members of the grid can be installed, accessed, taken down and put back up, and can support panels, without requiring tools generally for all but the perimeter of an installed area.

What is preferred depends on the situation. If making parts in a wood shop or small manufacturing facility, the implementation as shown in Figs. 5 and 6, designated as Species I, is preferred because of ease of manufacturing as well as installation. However, for a large manufacturer the implementation as shown in Figs.23—24 or Figs. 25—26, designated as Species VI and XII, respectively, are preferred, because the parts could be quickly manufactured, and the consumer could arrange, place and remove a cross-members anywhere along the length of the sloping member.

Having to choose a Species, Applicant elects to choose, with traverse, the implementation designated as Species I, because that is the implementation used in the Applicant's current business, and the type the applicant can quickly manufacture with available equipment, and has proven success.

Species X thru XII

Figs. 29—31, designated as Species X—XII, are three implementations of attaching low-ledgers to deck structures. The low-ledgers in these implementations are substantially identical to each other. The attachment means and deck structures vary.

Regarding pertinent structural elements of the invention, the low-ledgers in each of these implementations have common physical properties of an upward-face and an adjacent upstanding-face.

The three implementations simply represent different means of attaching the low-ledger to support members in differing under-deck environments. Although the attachment methods may be patentable on their own merits, the connection means should not be consider as a necessary property of the present invention. The implementations show that the low-ledger, without changing its simple structure, is amenable to be attached to various under-deck environments. However, necessary structural properties of the invention do not include specific attaching means.

Attachment of Fig. 29, designated as Species X, is suited to situations where the face of the existing deck beam and the existing deck post make a substantially even plane, the gutter is attach along its length to the beam(s) and across post(s). The low-ledger is supported at each end by end-boards.

In Fig 30, designated as Species XI, there is no beam at the level of the low-ledger. In this case it can be advantageous that the gutter runs between posts and attach to a fascia board. This is a reasonable application for small decks, where there are posts at the extreme ends of the deck.

The implementation as shown in Fig. 31, designated as Species XI, occurs where the beam and posts do not lineup to make a substantially even vertical plane. In the present case, a fascia board is attached to deck posts, the gutter is attached to the fascia board, and the low-ledger is held by end-boards. Fig. 31 is probably the most versatile method of attachment in that it can be use most anywhere, although it is not preferred in many cases. Figs. 29--31 show the versatility of the low-ledger to be attached is various under-deck situations, however, they are not essential properties of the invention itself.

Claims 1, 17 state the structural defining properties of the low-ledger in that it has an upper-face and an adjacent upstanding-face. Claim 2 further defines an instance of the low-ledger where it is made from a 2x2 fastened to 5/4 deck-board. However, the low-ledger can be made from a great variety of materials and have the pertinent structural properties. Claim 18, does not mention the low-ledger but has a low-

side supporting means instead. Claim 18 assumes that the grid is patentable without describing and including the structural benefits of the low-ledger.

The essential properties of the invention are associated with the aforementioned properties of the low-ledger itself, which were stated in independent claims 1 and 17, not in how it is attached. However, the Applicant elects, with traverse, to select the embodiment shown in Fig 25.

Species XX--XXIII

Figs. 32—35, designated as Species XX—XXIII, are three implementations of the high-ledger. The various implementations have to do with properties of existing decks and methods of attachment and not with variations of the physical properties of the high-ledger. The essential physical properties of the high-ledger of having an upward-face and an upstanding-face are consistently shared among the implementations. Although the attachment methods may be patentable on their own merits, said attachment means should not be consider as a necessary property of the present invention.

The variations of attachments depend on the house and deck structure. In Fig. 32 the upstanding-face of the high-ledger can be the surface of a house. This is a rare occasion since houses typically have aluminum, vinyl, concrete or brick siding, such that is somewhat difficult and usually not preferable to attach a 2x2 directly to such sidings. The implementation of Fig. 33 is usually applicable to attach to wood or brick siding. Fig. 34, using and offset bracket is usually applicable to instances where attachment through siding is not preferable, such as aluminum or vinyl siding, and often to brick and wood siding. The implementation of Fig. 35 would be preferable where joist are smaller than house headers, so that there is enough area for the high-ledger to attach to the deck header. This is desired in situations where maximum height of the installation is an objective, or where it is easier to attach to the portion of the deck header rather than the wall.

The pertinent properties of the high-ledger are stated in the independent claim 1 and 17 to have an upward-face and an adjacent upstanding-face. Claim 3 further defines a high-ledger as being made of a 2x2 attached to a 5/4 deck-board. But this embodiment is far from necessary to define the defining the pertinent structural properties of the invention. The independent claims do not, and need not define specific attachment means. Correctly, the independent claims 1 and 17 correctly read that the high-ledger and low-ledgers are adapted to be attached to the under-deck structure. Claim 18, does not mention the high-ledger but has a high-side supporting means instead. Claim 18 assumes that the grid is patentable without describing and including the structural benefits of the high-ledger. Applicant elects, with traverse, to choose Fig. 34.

Regarding the high-ledger and the low-ledger, the independent claims 1 and 17 further read that the ledgers are oriented such that upstanding face of the high-ledger faces the upstanding face of the low-ledger. These are important structural elements of the invention. In effect, the two-ledgers make a tray, in which the grid not only can be easily assembled, but also adjusted, without having to fasten and unfasten joist hangers or brackets. This is very important in an under-deck environment, where stark variations in wall and deck profiles are more common than not, and where deck quite often far from perfectly square. The ability to adjust the grid after it is placed makes a huge difference. These properties make assembly and adjustments of grids surprisingly easy.

Species XXX—XXXII

Figs. 36—38, designated as Species XXX—XXXII, have the distinguishing physical properties of overlapping corrugations of panels. The specific profile is not essential to the invention. These profiles

commonly are available in the market place. Figs. 36—38 were meant to illustrate various types of corrugations. The profile type is not an essential to any independent claim.

The Applicant uses mostly the implementation of Fig 36, because it is commonly available only in the preferred material of fiberglass. The implementation in Fig. 37 is commonly available as polycarbonate panels, which the Applicant sometimes uses. The implementation of Fig. 38 is not readily available in plastics. The Applicant prefers to use plastics because their light weight, low cost and resistance to corrosion. The Applicant tends to use triangular corrugations in drawings of other related patent applications, simply because they are easier to draw.

In independent claim 1 it is pertinent is that the panels simply have corrugations that overlap. Independent claim 17, only mentions panels and not how that panels interface with one another. Claim 17 assumes that the invention is patentable without expressing the properties of the panels themselves. Claim 18 assume that the invention is patentable without having to support panels exclusively, since panels are not mentioned in the claim. The Applicant elects to choose Fig. 38, with traverse.

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